We claim:

1. An optical filter comprising:

at least three retarders, the at least three retarders causing optical rotation to light of a first spectrum substantially without introducing retardation.

2. The filter of claim 1, wherein the at least three retarders are isotropic to light of a second spectrum.

3. The filter of claim 2, further comprising:

a bias retarder,

wherein the bias retarder and the at least three retarders have about a half wave of retardation.

4. The filter of claim 3, wherein the filter is an achromatic half wave retarder in the first spectrum and in the second spectrum.

5. The filter of claim 3, wherein the filter has a substantially wavelength stable eigenpolarization.

6. The filter of claim 1, wherein the optical rotation is a 90° optical rotation.

7. The filter of claim 1, wherein the optical rotation of the at least three retarders is achromatic in the first spectrum.

8. The filter of claim 1, wherein the at least three retarders have a substantially wavelength stable eigenpolarization.

9. The filter of claim 1, further comprising a first beam splitter in optical series with the at least three retarders.

10. The filter of claim 9, wherein the first beam splitter is a polarizing beam splitter.

11. The filter of claim 9, wherein the first beam splitter is a dichroic beam splitter.

12. The filter of claim 9, wherein the first beam splitter is a partially metallized mirror beam splitter.

13. The filter of claim 9, further comprising a second beam splitter in optical series with the at least three retarders and the first beam splitter.

14. The filter of claim 1, further comprising:

a first beam splitter and a second beam splitter,

wherein the at least three retarders are between the first beam splitter and the second beam splitter; and

wherein skew light ray polarization effects of the first beam splitter are offset by skew light ray polarization effects of the at least three retarders and the second beam splitter.

15. The filter of claim 14, wherein the first beam splitter and the second beam splitter have a common normal vector.

16. The filter of claim 1, wherein the at least three retarders further includes a bias retarder to make a retardation of the at least three retarders have substantially no retardation.

17. An optical filter comprising:

at least three retarders,

wherein the at least three retarders act as a half wave plate to light of a first spectrum; and

wherein the at least three retarders act as a half wave plate with a $\pi/4$ displaced optical axis to light of a second spectrum.

18. The optical filter of claim 17, wherein the at least three retarders act as a half wave plate with an orientation of $0°$ in the first spectrum and $45°$ in the second spectrum.

19. The filter of claim 17, wherein the at least three retarders have wavelength stable half wave retardation and wavelength stable eigenpolarization in at least one of the first spectrum and the second spectrum.

20. The filter of claim 17, wherein the at least three retarders are achromatic in the first spectrum and the second spectrum.

21. The filter of claim 17, further comprising a first beam splitter in optical series with the at least three retarders.

22. The filter of claim 21, wherein the first beam splitter is a polarizing beam splitter.

23. The filter of claim 21, wherein the first beam splitter is a dichroic beam splitter.

24. The filter of claim 21, wherein the first beam splitter is a partially metallized mirror beam splitter.

25. The filter of claim 21, further comprising a second beam splitter in optical series with the at least three retarders and the first beam splitter.

26. The filter of claim 25, wherein the first beam splitter and the second beam splitter have an orthogonal normal vector.

27. The filter of claim 17, further comprising:

a first beam splitter and a second beam splitter,

wherein the at least three retarders are between the first beam splitter and the second beam splitter; and

wherein skew light ray polarization effects of the first beam splitter are offset by skew light ray polarization effects of the at least three retarders and second beam splitter.

28. The filter of claim 17, further comprising a color projection system.

29. The filter of claim 17, wherein the at least three retarders are an out-of-plane uniaxial compensator.

30. The filter of claim 29, wherein the at least three retarders have an optical axis θ between about 26.0° to 26.5°.

31. The filter of claim 17, wherein the at least three retarders have a substantially wavelength stable eigenpolarization along a direction of a design axis of the at least three retarders.

32. An optical filtering method, the steps of the method comprising:

optically rotating light of a first spectrum without introducing retardation.

33. The method of claim 32, wherein the optically rotating is performed by three or more retarders.

34. The method of claim 33, wherein the three or more retarders are achromatic in the first spectrum.

35. The method of claim 33, wherein the three or more retarders have a substantially wavelength stable eigenpolarization.

37. The method of claim 33, further comprising separating light into two different paths.

38. The method of claim 37, wherein the separating is according to polarization.

39. The method of claim 37, wherein the separating is according to light wavelength.

40. The method of claim 32, further comprising:

a first separating of light into two different paths;

a second separating of light into two different paths;

wherein the optically rotating occurs after the first separating but before the second separating such the optical rotating is substantially independent of skew ray direction.

41. The method of claim 32, further comprising transmitting light of a second spectrum unaltered.

42. The method of claim 32, wherein the optical rotating is a 90° optical rotation.

43. An optical filter method, the steps of the method comprising:

retarding light of a first spectrum; and

retarding light of a second spectrum;

wherein a half wave of retardation is provided by the retarding light of the first spectrum; and

wherein a retardation equivalent to a half wave plate with a $\pi/4$ displaced optical axis is provided by the retarding light of the second spectrum.

44. The method of claim 43, wherein the retarding light of the first spectrum and the retarding light of the second spectrum are achromatic.

45. The method of claim 43, further comprising separating light into two different paths.

46. The method of claim 45, wherein the separating is according to polarization.

47. The method of claim 45, wherein the separating is according to light wavelength.

48. The method of claim 43, further comprising:

a first separating of light into a first path and a second path;

a second separating of light into a third path and a fourth path;

wherein the optical retardation occurs after the first separating but before the second separating such that skew light ray polarization effects of the first separating are compensated by the optical retardation so as to match skew light ray polarization effects of the second separating.

49. The filter of claim 48, wherein

the first path and the third path are parallel; and

the second path and fourth path are antiparallel.

50. The method of claim 43, wherein the retarding light of the first spectrum and the retarding light of the second spectrum have substantially wavelength stable eigenpolarizations.

51. An optical arrangement comprising:

a half waveplate; and

a pair of beam splitters oriented orthogonally to each other, the pair of beam splitters sandwiching the half waveplate.

52. The arrangement of claim 51, wherein the pair of beam splitters are a pair of polarizing beam splitters.

53. A method of filtering light, the steps of the method comprising:

splitting a first light beam to form a second light beam;

retarding the second light beam with a half wave of retardation to form a third light beam; and

splitting the third light beam.

54. The method of claim 53, wherein the splitting the first light beam and the splitting the second light beam are polarized splittings.

55. An optical arrangement comprising:

a planar polarizer;

a beam splitter; and

an out-of-plane retarder between the planar polarizer and the beam splitter.

56. The arrangement of claim 55, wherein the out-of-plane retarder is a color selective polarizing filter.

57. The arrangement of claim 55, wherein the planar polarizer has a transmission axis parallel or perpendicular to a plane containing an optic axis of the out-of-plane retarder.

58. The arrangement of claim 55, wherein the beam splitter is a polarizing beam splitter.

59. A method of filtering light, the steps of the method comprising:

polarizing an incident light beam to from a polarized light beam;

retarding the polarized light beam with an out-of-plane retarder to form a retarded light beam; and splitting the retarded light beam.

60. The method of claim 59, wherein the out-of-plane retarder is a color selective polarizing filter.